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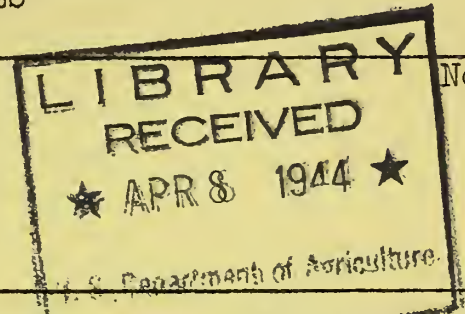
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S O I L C O N S E R V A T I O N L I T E R A T U R E
S E L E C T E D C U R R E N T R E F E R E N C E S

V.2

July/August, 1938

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"The handmaiden of all modern research is bibliography and like the domestic variety it can range from the heights of the superlative 'treasure' to the slatternly depths of inefficiency. At its best the service it gives is incalculable, and even at its worst it is capable of some small assistance. Good research work can only be built upon the foundations laid by previous workers, and without the aid of bibliography the student is lost. He cannot know where to begin his investigations and can but grope blindly, conscious of only what is immediately to hand and ignorant of all around him and all that has gone before. Without bibliographical aid his search for reference is inevitably imperfect and the results of his investigations will reflect these imperfections."

American Museum of Natural History.

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Mildred Benton
Librarian

PERIODICAL ARTICLESAsphalt in Erosion Control

Buchanan, J.E. Preventing wind and water erosion along highways and aqueducts. Pub.Works 69(4):10, illus. April 1938.

Discusses the uses of asphalt for preventing erosion by wind and water.

Capillarity

Galletti, A.C. Contributo allo studio della capillarità delle terre. Ann.Staz.Sper.Agr.Modena n.s.5:379-391. 1936.

Soil capillarity.

Ecology

Kittredge, Joseph, Jr. The interrelations of habitat, growth rate, and associated vegetation in the aspen community of Minnesota and Wisconsin. Ecological Monographs 8(2):151-246, illus. April 1938.
"Literature cited," pp.243-246.

Whitfield, C.J. Ecological relations of vegetation and erosion. Soil Conserv.3(11):262-264, 270, illus. May 1938.

Whitfield, C.J. and Anderson, H.L. Secondary succession in the desert plains grassland. Ecology 19(2):171-180, illus. April 1938.
"Literature cited," p.180.

"The primary objectives of this paper are, first, to point out some of the relationships existing between the present and climax vegetation; and second, to present data that will indicate the possibilities of restoration of the climax dominants so necessary for the control of erosion and the economic life of the cattle industry."

Hydraulic Models

Johnson, J.W. - Notes on the accuracy of movable-bed hydraulic models. Civ.Engin.8(6):410-411, illus. June 1938.

Nichols, K.D. Observed effects of geometric distortion in hydraulic models. Amer.Soc.Civ.Engin.Proc.64(6):1081-1102. June 1938.
"Bibliography," pp.1101-1102.

This paper is based on data contained in "The Observed Effects of Geometric Distortion in Hydraulic Models," a thesis presented by the writer to the State University of Iowa in 1937, in partial fulfillment of the requirement for the degree of Doctor of Philosophy.

Hydrologic Research

Buchanan, G.S. New soils and hydrologic station begins operation. Farm and Ranch 57(12):6, illus. June 15, 1938.

Tolls of the new Brushy Creek watershed experiment in Falls county, Texas, under the management of Ralph W. Baird. This large scale research project is one of ten in the United States. There many questions connected with soil and water conservation and flood control, underground water supplies and kindred subjects will be studied.

Monson, O.W. Need for research in the field of hydrology. Northwest Sci. 12(2):26-31. May 1938.

Paper presented at meeting of Soil Conservation Section, Northwest Scientific Association, Spokane, Wash., Dec. 29, 1937.

Infiltration

Laatsch, W. Die klimatisch bedingten Durchfeuchtungsunterschiede der deutschen boden (Infiltration differences in German soils as influenced by climatic factors) Ernähr. Pflanze 34(3):37-38. Feb. 1, 1938.

Summary in English pp. 54-55.

"Moisture infiltration values were worked out for different rainfall districts and mapped. The results are in close agreement with E. Werth's map of the climatic and vegetational zones of Germany." -- Soils and Fert. 1(2):60. 1938.

Stauffer, R.S. Infiltration capacity of some Illinois soils. Jour. Amer. Soc. Agron. 3(6):493-500, illus. June 1938.

"Summary and conclusions: 1. The infiltration capacities of several Illinois soils were determined at 14 locations. 2. The results indicate that at three of these locations the soils have high infiltration capacities and at 11 of the locations they have low infiltration capacities. 3. There are a number of factors which may cause the infiltration capacities of soils to vary, but the dominant factor seems to be the physical character and condition of the soils themselves. 4. The main purpose of this project is to secure information that will be of value in characterizing soils and in soil and water conservation..."

Irrigation

Kulp, M.R. Irrigated agriculture in relation to soil conservation. Northwest Sci. 12(2):45-48. May 1938.

Lewis, M.R. and Milne, W.E. Analysis of border irrigation. Agr. Engin. 19(6):267-272, illus. June 1938.

"Literature cited," p. 272.

The authors believe that the method of approach presented will be a valuable aid in studying methods of application of water. They have developed a formula for the rate of advance of the irrigating stream when the rate of infiltration is not constant.

Pantoli, B., Galletti, A. C. and Fabbri, A. Rilievo pedologico del comprensorio della bonifica Cremonese-Mantovana con particolare riguardo alle condizioni della sua irrigabilità (The improvement of soils with reference to irrigation) Ann. Staz. Sper. Agr. Modena n.s. 5:283-347. 1936.

"The various soil types in the different regions were analyzed for K_2 , P_2 , O_5 , CaO , MgO , ph . A mech. analysis was also made, including capillarity, permeability, contractibility, water-holding capacity, wt. per vol. (dry and moist) and specific wt. Results are tabulated." J. A. LeClerc. Chem. Abst. 32(8):3070. Apr. 20, 1938.

Stephenson, R. E. Erosion control on irrigated lands. Calif. Cult. 85(11):340. May 21, 1938.

Land Utilization and Policy

Ciriacy-Wantrup, Siegfried von. Economic aspects of land conservation. Jour. Farm Econ. 20(2):462-473. May 1938.

Ciriacy-Wantrup, Siegfried von. Land-use planning or land-use policy in the United States. Agr. Engin. 19(6):261-263, illus. June 1938.

Presented before the agricultural section of the Commonwealth Club of California, at San Francisco, December 7, 1937. Giannini Foundation Paper no. 69. (This paper appears in this magazine in slightly condensed form: Editor's note)

The author expresses the opinion that "if obstacles to effective private land planning are overcome through a governmental land policy, if broad rules of land use are established through land use legislation and if this legislation is effectively administered and enforced locally through the soil conservation districts, one can hope that private initiative in land-use planning will achieve the same socially desirable results as it has in other countries. All lands which cannot be utilized profitably by private initiative under such land-use legislation should be taken over by the government and protected. This rich and free country has a singular opportunity to combine governmental land-use legislation with individualistic land-use planning."

Clayton, C. F. The land use program in action. Agr. Situation 22(5):9-10. May 1938.

How the land use program has been put into effect in the Musselshell Central Montana project, in the Great Plains region.

Cutler, J. S. Soil conservation from a land-use viewpoint. Jour. Amer. Soc. Agron. 30(6):520-528. June 1938.

Discussion of the various interrelationships between proper land use and adequate soil conservation.

Duncan, O. M. Some human problems in land use planning. Okla. Agr. Exp. Sta. Current Farm Econ. 11(2):39-43. April 1938.

Eisenhower, M. S. Coordinating land-use programs. Plan Age 4(6):170-176. June 1938.

An interpretation in a concise manner of the objectives of the United States Department of Agriculture, the work of the office of land-use coordination and part played in planning by the farmers themselves.

Glick, P.M. The soil and the law: I. Jour. Farm Econ. 20(2):430-447. May 1938.

This article which is to be concluded in a later issue has for its purpose the exploration of the frontier on which land-use programs confront the law and "to indicate some of the problems which must be solved if remedial measures for the better handling of our soil resources are to be translated from paper programs to living institutions, that is to say, are to be enacted into law, administered, and made effective."

Gray, L.C. Our land policy today. Land Policy Rev. 1(1):3-8. May/June 1938.

A review of developments in land planning during recent years.

S., R. The land program at work. An Arkansas project emphasizes some southern needs. Land Policy Rev. 1(1):17-19. May/June 1938.

The author states that "what is needed in the South are such vehicles for improving use of land as will provide essentially for community cooperatives, the development of a cooperative medium of control that can direct the economic and social as well as physical phases of land use; that is flexible and comprehensive enough to answer a real need in fitting the varied economic interests of southern rural sections into an orderly chart of future use; and that can be adapted to fit differing areas throughout the South. If the soil-conservation district, in conjunction with other proved instruments of control, can do this, it will provide the solution to one of the most important of all land-use problems."

Stuart, A.W. Positive agricultural planning. Plan Age 4(6):163-169. June 1938.

Discusses the emergence of the new relationship between the individual farmer and the government which has resulted from the operation of the newer programs, namely those of the Agricultural Adjustment Administration, Rural Rehabilitation and Soil Conservation Service.

Legumes

Beecley, F. Nodule bacteria and leguminous cover plants. Jour. Rubber Res. Inst. Malaya 8(2):149-162, illus. January 1938.

Lecture given at the Annual Conference of the Incorporated Society of Planters at Kuala Lumpur, on 18th September, 1937.

Nixon, W.M. Early southern giant bur clover promising winter cover and soil improving crop. Soil Conserv. Serv. News 4(4):6-7. May 1938.

This legume (*Medicago arabica*) has shown promise in the coastal plains area of Louisiana, Texas and Arkansas.

Strong, T.H. Legume establishment and its function in relation to the development of some of the poor soils on Kangaroo Island. Jour. Dept. Agr. So. Aust. 41(6):542-550. January 1938.

"References," p. 550.

The author is an officer of the Division of Soils, Council for Scientific and Industrial Research, stationed at the Waite Institute in Melbourne, Australia.

Permeability

Erkin, G.D. Determination of the permeability of water-logged soils in the field. Pedology no.5, 1937, pp.693-706.

In Russian.

A hole is made in the soil and the time taken for it to fill with water noted and a filtration coefficient deduced from this.

Rainfall and Precipitation

Hall, B.E. Geography and rainfall of the Nebraska sandhills.

U.S. Mo. Weather Rev. 66(2):36-38. February 1938.

"Literature cited," p.38.

Jensen, J.C. Evaporation and rainfall studies in the northwest Minnesota lake region. Amer. Phil. Soc. Proc. 78(4):651-670, illus. Mar. 31, 1938.

Abstract.- "The evaporation and rainfall studies made in the northwestern Minnesota lake region during the summer of 1935 were continued with essentially the same equipment during the spring and summer of 1936. The rainfall deviations noted in the preliminary report were duplicated to a large extent during the summer of 1936, the heavier precipitation in the vicinity of Evansville being especially noticeable. Tabulated data are given to show the wide variation of thunderstorm rainfall in stations only a few miles apart. This is in agreement with the studies of local storms made by Thornthwaite in Oklahoma.

"The large additional moisture content in the air on the lee-side of lakes was again noted and additional information obtained regarding the rate of evaporation by observation of several lakes. It is shown that the heat absorption resulting from one-half inch of evaporation per day is considerably more than the total incident solar radiation on the corresponding surface; therefore, it is evident that the presence of the lake will have a decided cooling effect in addition to the moisture content of the atmosphere. Radiation falling on stubble and dry soil, on the other hand, is mostly reflected and thus raises the temperature of the surrounding air. This cooling effect of exposed water surface is one of the important contributions of the lakes and ponds which the author contends should be greatly increased in number."

Schulman, Edmund. Nineteen centuries of rainfall history in the southwest. Amer. Met. Soc. Bull. 19(5):211-215. May 1938.

References, pp. 214-215.

Brief summary of data obtained from the Central Pueblo chronology developed by A.E. Douglas. This chronology represents the rainfall of northern Arizona and New Mexico and the neighboring regions of similar climate beginning at 11 A.D.

Run-off

Lloyd, D. Daymond theory of storm water run-off applied to reservoir-catchment areas. Water & Water Engin. 39(483):497-498.

September 1937.

Wallace, D.S. Runoff of Florida streams. Civ. Engin. 8(6):405-407, illus. June 1938.

Abridged form of a paper presented before the Sanitary Engineering Division, American Society of Civil Engineers, Jacksonville, Fla., Spring 1938.

The full manuscript, including three tables of detailed data, has been filed in the Engineering Societies Library.

Youngquist, C.V. Ohio stream flow: the unit-hydrograph method of analyzing surface run-off. Ohio State Univ. Engin. Exp. Sta. Engin. Exp. Sta. News 10(2):26-28. April 1938.

Silt Transportation

Griffith, W.M. A theory of silt transportation. Amer. Soc. Civ. Engin. Proc. 64(5):859-874. May 1938.

Synopsis: "A theory of silt transportation is outlined in this paper, and equilibrium equations are presented which it is claimed are applicable to channels of all sizes and shapes, provided the silt load and the bed consist of 'loose granular material and provided certain hydraulic conditions are satisfied. The equations are of special value in problems relating to river-control works and tidal river outfalls; for example, they can be used to estimate the change in bed level that will result from widening or 'tightening' a river section, or to determine whether a proposed dredge cut can be expected to maintain itself."

Soil Conservation

Bischoff, F.C. Entomology in relation to conservation. Jour. Econ. Ent. 31(1):1-11. February 1938.

The author indicates that entomologists should play an important part in conservation activities. Hereto entomological phases have been ignored.

Lommasson, Thomas. Animal industry in relation to soil conservation. Northwest Sci. 12(2):41-45. May 1938.

Read before the 1937 meeting of the Northwest Scientific Association at Spokane, Dec. 29, 1937.

Soil Erosion and Control. United States

Glendinning, R.M. and Torbert, E.N. Agricultural problems in Grainger county, Tennessee. Econ. Geogr. 14(2):159-166, illus. April 1938.

Setting and conditions in the county, erosion, farm supporting capacity and agricultural over-population are among the points discussed.

Hockley, H.A. and Walker, Herman, Jr. 1937 state legislation for control of soil erosion. Jour. Land & Pub. Utility Econ. 14(2):210-217, illus. May 1938.

Neal, J.H. Effect of degree of slope and rainfall characteristics on runoff and soil erosion. Agr. Engin. 19(5):213-217, illus. May 1938.
Presented before the Soil and Water Conservation Division, American Society of Agricultural Engineers, Chic., Ill., Dec. 2, 1937.

Reports results of a study of a few factors affecting erosion which were obtained by setting up a miniature laboratory-controlled field on which the degree and length of slope, the rainfall intensity and duration, and the soil conditions were regulated or measured.

Nelson, Peter. Land tenure and agricultural conservation. Okla. Agr. Exp. Sta. Current Farm Econ. 11(2):27-31, illus. April 1938.

Includes maps showing farm tenancy in relation to mineral resources in Oklahoma; and soil erosion; also a table indicating land use, degree of erosion, and slope of land by tenure in Kiowa and Muskogee counties, Oklahoma.

Soil Erosion and Control. Foreign Countries.

Carle, G. La bourse et la pédologie ou les difficultés Brésiliennes. (Economics and pedology, or Brazilian difficulties) Rev. Bot. Appl. 18(197):44-47. January 1938.

Soil exhaustion in Brazil, due to coffee production on virgin soils without returning any fertilizer elements to the soil.

Case, G.O. The use of vegetation for coast protection. Agr. Jour. Brit. Guiana 9(1):4-11, illus. March 1938.

Use of various types of vegetation along coast of British Guiana to prevent erosion of naturally formed sand and shell embankments.

It is indicated that *Spartina* grasses are among the most valuable plants.

Eksteen, L.L. Conservation of soil fertility in the maize belt. Farming So. Africa 13(144):103-104. March 1938.

By a lecturer in chemistry, School of Agriculture, Glen, O.F.S.

Hornby, H.E. The control of animal diseases in relation to overstocking and soil erosion. Indian Jour. Vet. Sci. and Animal Husb. 7(4):309-321. December 1937.

"References," p. 321.

It is shown that "the parts of Tanganyika Territory which are agriculturally the richest are frequently extremely unhealthy for stock, but may be made comparatively healthy by measures which favor erosion and bring about artificial soil aridity."

Jack, H.W. Soil erosion. Agr. Jour. Fiji 8(4):4-7. 1937.

An account of the extent of soil erosion in Fiji. Damage is not extensive, but the position needs watching.

Kroon, A.H.J. De bemoeienis van de landbouwvoorlichting met den ladangbouw (The work of the Agricultural Advisory Service in connection with the ladang system of cultivation) Landbouw 13(7/8) 379-398. Jly/Aug. 1937.

Soil conservation in the Netherlands East Indies.

"Ladang is a form of agriculture characterized by an extensive use of the soil followed by a rest or fallow period of several years. Ladang does not necessarily involve actual cultivation of the soil but may include forest or pasture as well as farms. If farms they may be planted to trade or food crops, to annual or perennial crops.

"Ladang is practiced by cutting down and burning the existing vegetation, after which the sowing or planting takes place, if possible without previous cultivation of the soil. After one or more crops the fields are abandoned and permitted to revert to their natural state, until after a number of years they are again cleared for use. There are several variations of this system, depending upon climate, soil, and population density.

"In a static native society with sufficient available land such a system would be unsatisfactory, as it doubtless was in the past in large districts. The rapid natural increase in population, however, coupled with the growing demands of the more recent native generations, requires a considerably larger food supply. More intensive cultivation, together with longer use and shorter rest periods for the land would have furnished sufficient food for many years to come. During the past two decades, however, the withdrawal of extensive areas from native use for the development of rubber and other plantations has greatly accelerated the increasing need for more land. In consequence much forest was cleared for ladang which should never have been touched, and much land has been used so long and burned over so often without sufficient intervening rest periods for recovery that it has become badly eroded and in many instances wholly unsuitable for further cultivation.

"It was at this point that the agricultural advisory experts were called in to prevent further damage to these natural resources and to develop ways and means for soil conservation without diminishing the food supply. There are two chief methods of repairing the damage to the land and restoring the fertility of the soil: (a) regulation of the ladang system of cultivation by establishing ladang complexes, protection against forest fires during the rest periods, etc., and (b) shortening of the rest periods by artificial reforestation and by the planting of incombustible leguminous and other soil building cover crops. Usually both of these methods are combined. Instead of letting the land revert to natural vegetation, a slow and haphazard process, the Service has obtained favorable results from planting rapidly growing nitrogenous crops, such as crotalaria and tephrosia, which will also suppress weeds, serve as a protection against forest fires, quickly restore the original fertility of the soil, and effectively prevent erosion. Numerous experiments have been conducted in an attempt to find trees which will build the soil and at the same time have economic value as well.

"The chief disadvantages of the ladang system of cultivation do not arise from the use of the land as such, but from the erosion following excessive use and from the forest fires resulting from the careless burning over of adjacent fields and grasslands. After the jungle vegetation has had an opportunity to reestablish itself it is practically incombustible, but annual burnings prevent such a reversion. Such land will ultimately become grassland, so-called alang-alang, which will be burned over each year to promote the

growth of new grass. This uncontrolled burning, however, usually includes the adjacent recently abandoned ladang fields, which thereby ultimately become unsuited for further agricultural use.

"Successful experiments have been carried on to reforestate these grasslands by sowing or planting fast-growing trees and protecting them against fires. After a few years such areas will again revert to natural forest. Sloping fields subject to erosion are terraced, sometimes with stone embankments, but usually with crotalaria or tephrosia on the ridges.

"When in a certain area cultivation has advanced from ladang, with alternating use and fallow periods, to permanent use, a system of crop rotation must be worked out. At this stage leguminous crops such as crotalaria are planted between the rows and regularly pruned back to serve as fertilizer. The clippings are more or less worked into the soil as the cultivated crops are being hoed, but plowing under of an entire cover crop rarely occurs because plows and similar equipment are practically unknown to the natives. Nevertheless, as such tools are indispensable to intensive cultivation attempts are being made to teach them their proper use.

"The application of such methods greatly increases the fertility of the land and therefore the food supply, and also permits a considerable shortening of the rest periods, and in many cases, through erosion control and soil building practices, makes possible permanent cultivation." --Jan van der Vate. Agr. Econ. Lit. 12(4): 346-348.

Malomakhova, T.A. Amelioration of eroded red soils. Soviet Subtrop., no. 12, 1937, page 82.

Article in Russian.

"Organic manures proved the best method for fundamental improvement of these red soils. Besides the mechanical effect organic manures also lowered the P_2O_5 requirement and fixed the toxic Al present. Lime and silicates were also found to be of use." - Soils and Fert. 1(3):105. 1938.

Newhouse, F. Preservation of the Nile. Engin. 164 (4273):624-625. Dec. 3, 1937.

Points to the necessity for prevention of the ruin of the Blue Nile catchment area.

Abyssinia is now a savage and sparsely populated country covered with forest, scrub and grass. Under Italian control development will be hastened. "If Abyssinia becomes quiet and peaceful and the cattle and goats increase, the mountains and plains will be denuded of trees and grass, the countryside will be torn to bits by torrents, the discharge of the Blue Nile will be a monstrous flood every year, and its whole regime be altered to the certain detriment and possible ruin of Egypt..."

"The obvious thing to do is therefore for Egypt and the Sudan to invite Italy's attention to the matter and to arrange for some of their engineers to study the technique of anti-erosion measures at first hand in America, so that, Italy be willing, the former countries may be in a position to discuss the steps to be taken to prevent the ruin of the Blue Nile catchment area and the lands dependent on that river."

"Nothling, I.J. The attitude of farmers towards the soil-erosion scheme. Farming So. Africa 13(144):113-114. March 1938.

An examination of the attitude of South African farmers after four years of operation of the soil erosion scheme leads one to infer that "ignorance is the chief reason why so little attention is paid to the scheme." The author indicates that "the farming community must be instructed and convinced".

Pasture and fodder crop research in the tropics. Its agricultural significance and importance in land utilisation and improvement. Trop. Agr. [Trinidad] 15(3):49-52. March 1938.

The relation of grassland research to soil erosion and the need for an ecological survey as a preliminary to herbage research.

Soil deterioration and land tenure. Trop. Agr. [Ceylon] 89(6):325-326. December 1937.

Editorial indicating the effect of the joint ownership of land in fragmentary shares on land improvement in Ceylon.

Soil Fertility

Adams, J.E. Chemical investigations of the effect of fertilizer ratios and green manures on yields and composition of crops and the organic matter in Norfolk sand. Iowa State Col. Jour. Sci. 12(1):101-103. October 1937.

"The soil is subject to excessive leaching and aeration, and high temperatures and rainfall, and does not allow an efficient usage of summer legumes turned in as green manures. It also contains organic matter of a wide C/N ratio. The hay crop should be renewed and liberal quantities of N applied to the summer crops. The use of winter cover crops is to be recommended. Fertilizers high in potash tend to maintain, or increase, the pH in this soil." - Soils and Fert. 1(2):61. 1938.

Scarsoth, G.D. and Chandler, W.V. Losses of phosphate from a light-textured soil in Alabama and its relation to some aspects of soil conservation. Jour. Amer. Soc. Agron. 30(5):361-374, illus. May 1938.

"Literature cited," p. 374.

"The data show that the phosphate losses are very large even if the land shows no apparent mass or accelerated erosion, because whatever the amount of muddy water that runs off the land, it carries off heavy loads of phosphates that are associated with the clay fraction of the soil..."

"If the soil is to build up its storage of plant nutrients to be revolved through the plant back to the soil, and in the bodies of micro-organisms, it is of the greatest importance that the loss of the clay fractions of the soil in muddy waters be prevented. It is also important to recognize that terraces as commonly constructed in the Southeast cannot alone adequately conserve the clay fractions that are so essential in maintaining soil fertility."

Smit, N.L. The value of straw in the improvement of soil fertility. Farming So. Africa 13(144):111-116. March 1938.

Tyulin, A. TH. The composition and structure of soil organo-mineral gels and soil fertility. Soil Sci. 45(5):343-357, tables. May 1938.

"References," p. 356-357.

"The work described in this paper establishes, by the use of the methods of fractional peptization and of fractional coagulation, the nature of the organo-mineral gels in soil. It demonstrates the presence of loosely held humus at the surface of such gels and the significance of this humus for the evaluation of soil fertility."

Soil Microbiology

Gray, P. H. H. Microbiological studies of Appalachian soils. III. Synchronous changes of bacterial numbers in two field soils. Canad. Jour. Res. 16(4):145-151, illus. April 1938. **SECTION C**

"References," p. 151.

"In attempting to show the existence of an association between the density of the microflora and available organic matter, two lines of approach have been chosen: first, to determine the density of micro-organisms in soils receiving such amendments as are known to release organic matter; and secondly, to add easily decomposable compounds of carbon and nitrogen to soil and then to determine the subsequent biological activity. The studies reported were concerned with the former of these lines of approach."

Lochhead, A. G. and Taylor, C. B. Qualitative studies of soil micro-organisms. I. General introduction. Canad. Jour. Research 16(4): 152-161. April 1938.

"References," p. 160-161.

Lists the points which seem to be established after considering the evidence from qualitative studies so far reported.

"The work so far done points to the value of more extensive studies of the qualitative nature of the soil microflora and the types predominating."

Taylor, C. B. and Lochhead, A. G. Qualitative studies of soil micro-organisms. II. A survey of the bacterial flora of soils differing in fertility. Canad. Jour. Research 16(4):162-173, illus. April 1938.

"References," p. 173.

Terracing

Brandt, A. E. and Musgrave, G. W. What we have learned about terrace spacing at Guthrie, Oklahoma. Soil Conserv. 3(11):267-269, illus. May 1938.

Downing, J. M. A complete water disposal plan using vegetation in terrace outlets. Agr. Engin. 19(5):211-212, illus. May 1938.

Describes a plan worked out by the Soil Conservation Service in South Carolina which by utilizing vegetation as the principal control measure, reduces cost of labor and supervision.

Martin, J.B. Logs protect the terraces. Prog. Farmer and South. Ruralist 53(6):4. June 1938.

Brief statement of use of log protectors for gully prevention which might result between one field and another because of emptying or ending of terraces.

Wind Erosion

Leighton, M.M. Geology of soil drifting on the Great Plains. Sci. Mo. 47(1):22-23, illus. July 1938.

"1. Dust storms will occur in even a moist climate if broad areas of fine rock material, without vegetative cover, are exposed to the wind... 2. The general prevalence of a definite soil profile over the Great Plains, and the High Plains, shows that their climate is not too dry for a general vegetative cover to develop if it is permitted to do so... 3. In the High Plains, and under some conditions of soil and topography on the relatively low plains, the opposing factors are so nearly critically balanced that man must act with intelligence and skill if he is not to lose his greatest resource... 4. The short climatic cycles probably produced local but not wide-spread wind erosion under virgin conditions."

Veryard, R.G. Dust storms in India. Met. Mag. (London) 73(869): 112-116. June 1938.
References, p. 116.

Whitfield, C.J. Crop production on land badly damaged by wind erosion in the Great Plains. Jour. Amer. Soc. Agron. 30(6):461-464, illus. June 1938.

"...Actual field tests indicate that these badly eroded lands can be reclaimed for agricultural use in relatively short periods of time."

BOOK AND PAMPHLET NOTES AND ABSTRACTS

Boyce, J.S. Forest pathology. 600pp., illus. New York, McGraw-Hill book company, 1938. 464.47 B69F
References at end of each chapter.

Drabble, Hilda. Plant ecology. 142pp., illus. London, Edward Arnold & co. [1937] 463.8 D78
"Bibliography," pp. 131-132.

"An attempt has been made to give, with a minimum of technical terms, a simple account of the relations between plants and their habitats as interpreted by present-day conceptions.

"This book is supplementary to, not a substitute for, a General Text Book of Botany. Only such facts and theories are dealt with as the writer conceived essential for a student's understanding of the subject, as distinct from a specialist's needs."

Eliot, W.A. Forest trees of the Pacific coast, including a brief account of the outstanding characters, distribution and habitat of the trees native to Alaska, British Columbia, Washington and Oregon; most of which are also found in Idaho and northern California and eastward to the western slopes of the Rocky mountains. 565pp., illus. New York, G.P. Putnam's sons, 1938. 99.3 E14

Federal writers project. Idaho. The Idaho encyclopedia. 452pp., illus. Caldwell, Idaho, Caxton printers, ltd., 1938. 280.01 F31. pp.122-125: Reservoirs and dams.

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The accompanying photographs are either from the movie itself, or, with a few exceptions, were made by government cameramen working in the same areas in which the picture was made.

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"'Land of the free' is the opposite of a book of poems illustrated by photographs. It is a book of photographs illustrated by a poem. The photographs, most of which were taken for the Resettlement Administration, (a few are Soil Conservation Service) existed before the poem was written."

The underlying theme is soil conservation and its economic and social aspects.

Muskingum watershed conservancy district. Working together in the Muskingum valley. A coordinated conservation program by federal, state and local agencies. 29pp., mimeogr., illus. n.p. [1938?] 290 M97W

"The Muskingum valley in southeastern Ohio has been described as the cradle of the most extensive experiments in soil and water conservation in the world. Rightly or wrongly referred to as such, it is true that this watershed of more than eight thousand square miles is today the scene of numerous studies and action projects dealing with the control of flood waters and soil erosion.

"To the general public, the meaning and purposes of the several enterprises may not be readily understandable. It is to explain the aims and interrelationship of various activities in the valley that this pamphlet has been prepared." ---Preface by Bryce C. Browning, Secretary-Treasurer, The Muskingum Watershed Conservancy District.

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Includes information on preparation of maps, ground water data, topographic features and hydrography.

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